King County
Department of Natural Resources and Parks
**Wastewater Treatment Division**

**City of Carnation**

# Carnation Wastewater Treatment Facility Fact Sheet

## Background

Because there is no central wastewater treatment plant serving the City of Carnation, residents and businesses must rely on individual septic systems to treat their wastewater. The Carnation City Council has long recognized that a sewer system and wastewater treatment plant is essential to the city's environmental health and economic revitalization.

Following several engineering studies and much discussion, the City Council entered an agreement with King County to build a treatment plant instead of building a city-owned plant. In the agreement, the city will design and build a local wastewater collection system while the county will design, build, operate and maintain a treatment plant.

The plant is being sized to meet the city's future needs and will serve the city's Urban Growth Area as defined by the city's comprehensive plan. It will initially treat about 400,000 gallons of wastewater and could be expanded to treat about 450,000 gallons per day. The state Growth Management Act requires that facilities be provided to support growth within urban growth areas designated by local jurisdictions. The plant will provide advanced treatment (also called tertiary treatment) in order to meet stringent water quality standards. Building and operating a plant in Carnation presents both environmental and economic challenges.

## How will locations for the facility be found?

The Carnation wastewater treatment facility will have three components: a treatment plant, pipes for conveyance, and a discharge location.

A Citizens Advisory Committee, representing a range of interests, provided advice and comment on siting criteria and options to Carnation and the county. The public was also given opportunities to comment on the criteria. These criteria were applied to the planning area to find suitable locations. An analysis of suitable locations resulted in identification of two treatment plant sites and two discharge alternatives (river discharge and upland discharge).

In August and September of 2003, the county and city conducted an environmental scoping process for the original alternatives. The process included a public comment period and public meeting to gather comments on environmental issues and alternatives to evaluate in an Environmental Impact Statement (EIS). Responding to public comments during EIS scoping, King County and the City of Carnation added a third discharge alternative, wetland discharge, at the nearby Stillwater Wildlife Area. The proposed river discharge location was also modified.

These alternatives were thoroughly analyzed in the Draft Environmental Impact Statement:

**Two site alternatives for the treatment plant:**

- City-owned site: a nine-acre parcel west of the business district and State Highway 203 on city-owned property at the end of Entwistle Street (formerly known as the Schefer property).
- Weckwerth site: a five-acre parcel owned by the concrete forming company immediately east of the Carnation Fire Station and Highway 203.

**Six pipeline alternatives**

Six alternative pipeline routes were identified, one route for each possible combination of treatment plant site and discharge location. The pipes range from 1.5 to 3 miles long and would be 8 to 10 inches in diameter. Most pipeline routes would be in the public right-of-way. The pipelines would be buried 3 to 8 feet underground and built by trenching.

**Three alternative locations for discharge facilities:**

- **River discharge**: Highly treated water from the plant would be discharged to the Snoqualmie River at the Carnation Farm Road Bridge about a mile north of Carnation. An 8 to 10-inch pipeline would lie on the river bottom and extend about 15 feet into the river.

- **Wetland discharge**: Highly treated water from the treatment plant would be used to create and enhance wetlands in the Stillwater Wildlife Area, about two miles north of Carnation. This alternative would enhance habitat for native plants, fish and wildlife. Two options are being considered within this alternative. Under the **basic option**, several wetlands would be created or enhanced. This would consist of introducing highly treated water to existing low areas in former agricultural fields or existing wetlands, with native plantings. The **expanded option** would add large woody debris clusters on one or more streams to keep water in the existing wetlands for a longer period of time and create pools for fish and wildlife habitat.

- **Upland discharge**: Highly treated water from the treatment plant would be discharged to constructed basins, where it would filter through the ground. The upland discharge site would occupy up to 10 acres within the 240-acre upland discharge study area southeast of Carnation. Up to eight half-acre infiltration basins would be built and used sequentially.

In the summer, some treated water may be able to be used for **water reuse**. Reclaimed water is wastewater that has been treated to such a high level that it can be used safely for non-drinking water uses like irrigation. Potential reclaimed water uses in the area are being evaluated.

Maps of the locations can be found on the project Web site or asking for a public information document summarizing the Draft Environmental Impact Statement. (See page 4.)

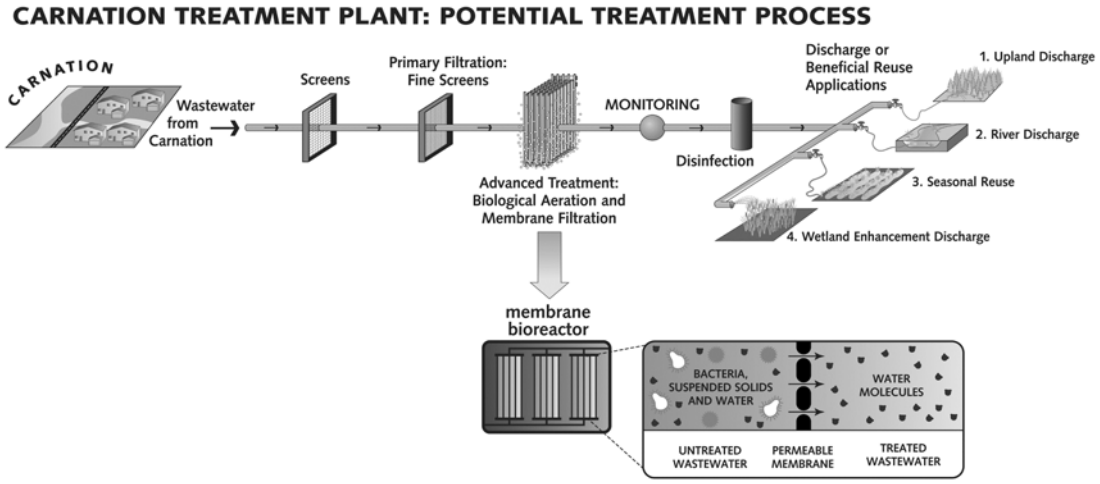
## How clean will the water be?

### Wastewater Treatment 101

Wastewater is usually treated in two stages. Primary treatment removes about 60 percent of the solids in the waste stream by skimming and settlement. Secondary treatment removes most remaining solids, up to 95 percent, using a biological process. In secondary treatment, the wastewater enters an aeration basin, where oxygen is added to wastewater and activates the naturally occurring bacteria that eat dissolved organic material. This standard process is used at King County's existing treatment plants in Seattle and Renton. This secondary effluent meets the tough environmental requirements and regulatory standards required to discharge into the Puget Sound.

### What does advanced treatment mean?

Advanced treatment is additional treatment of wastewater beyond the secondary or biological treatment stage. It frequently includes the removal of nutrients such as phosphorous and nitrogen and a high percentage of suspended solids**. The Carnation Wastewater Treatment Plant will use advanced treatment regardless of the discharge alternative chosen.**



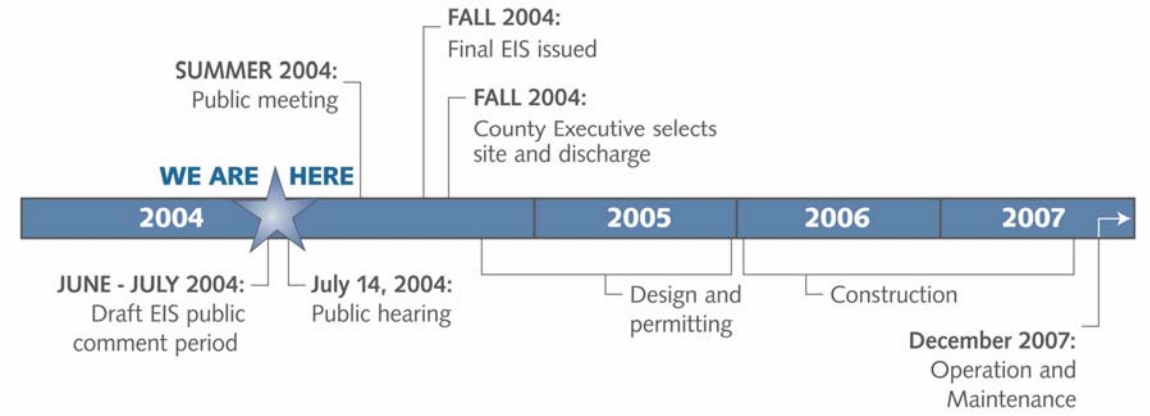

**A new advanced treatment process called a membrane bioreactor, or MBR, has been chosen for the Carnation Wastewater Treatment Plant.** Membrane bioreactors combine standard biological wastewater treatment with synthetic membrane filters submerged in wastewater. Membrane cartridges or plates are in a tank where the biological process is taking place. The filters have pores large enough to let water molecules pass through but small enough to screen out undesired particles, including individual bacteria. Suction pulls clean water through the membranes. Solids stay in the process tank, while cleaned water goes on and is disinfected.

Unlike typical secondary treated wastewater, no additional treatment except disinfection is required to produce Class A reclaimed water suitable for irrigation or any of the other discharge alternatives being considered. Membranes have been used to treat drinking water for over a decade. For the size of Carnation's treatment plant, membranes would cost roughly the same amount as conventional technology such as sand filtration. Since

membranes require more energy, operation and maintenance costs would be higher. For information on membrane bioreactors, check the Web at http://dnr.metrokc.gov/wtd/reuse/alternatives.htm

## Timeline

King County issued the Draft Environmental Impact Statement (EIS) on June 28, 2004. The comment period will run until July 27, 2004. Comments on the draft EIS will be addressed in the final EIS scheduled for release fall of 2004. In addition to the EIS, many factors—including cost, community considerations, engineering and policy issues—will play a role in shaping the final decision. The County Executive, with the input of City Council and the public, will make this decision fall of 2004. System design and permitting is scheduled for 2004-2005. Construction is tentatively scheduled for 2006-2007.




*There will be opportunities for public involvement at every stage of the project.*

## Where can I get more information or let you know my opinion?

The City of Carnation and King County's Wastewater Treatment Division are working together to provide public information and involvement opportunities throughout the treatment facility process. Check the Web site or call the number below for the next community meeting or other scheduled events.

For further information on the treatment plant, call the project information line at **206-263-5212 or toll-free at 1-800-325-6165, ext. 35212**, e-mail **CarnationWWTP@metrokc.gov**, or check the Web site at http://dnr.metrokc.gov/WTD/carnation/

For information on the local sewage collection system, contact Bill Brandon, City Manager for the City of Carnation, at **425-333-4192** or check the Web at **www.ci.carnation.wa.us**.

To receive this information in alternative formats, call 206-296-8361 or 711 (TTY)